

SEQUENCE LISTING

<110> The Government of the United States of America as
represented by the Secretary of the Department of Health and
Human Services
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Graves, Joan P.
Stumpo, Deborah J.

<120> COMPOSITIONS AND METHODS FOR DIAGNOSTICS AND THERAPEUTICS FOR
HYDROCEPHALUS

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<150> 60/374,184
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Glu Trp Leu Asp Thr Met Val Asp Arg Cys Val Val Lys Val Ala Ala
 305 310 315 320

Lys Arg Arg Gly Ser Leu Lys Lys Val Ala Gln Gln Phe Leu Leu Met
 325 330 335

Trp Ser Cys Phe Gly Thr Arg Val Ile Arg Asp Met Thr Leu His Ser
 340 345 350

Ala Pro Ser Phe Gly Ser Phe His Leu Ile His Leu Met Phe Asp Asp
 355 360 365

Tyr Val Leu Tyr Leu Leu Glu Ser Leu His Cys Gln Glu Arg Ala Asn
 370 375 380

Glu Leu Met Arg Ala Met Lys Gly Glu Gly Ser Thr Ala Glu Val Arg
 385 390 395 400

Glu Glu Ile Ile Leu Thr Glu Ala Ala Ala Pro Thr Pro Ser Pro Val
 405 410 415

Pro Ser Phe Ser Pro Ala Lys Ser Ala Thr Ser Val Glu Val Pro Pro
 420 425 430

Pro Ser Ser Pro Val Ser Asn Pro Ser Pro Glu Tyr Thr Gly Leu Ser
 435 440 445

Thr Thr Gly Ala Met Gln Ala Tyr Thr Trp Ser Leu Thr Tyr Thr Val
 450 455 460

Thr Thr Ala Ala Gly Ser Pro Ala Glu Asn Ser Gln Gln Leu Pro Cys
 465 470 475 480

Met Arg Asn Thr His Val Pro Ser Ser Ser Val Thr His Arg Ile Pro
 485 490 495

Val Tyr Pro His Arg Glu Glu His Gly Tyr Thr Gly Ser Tyr Asn Tyr
 500 505 510

Gly Ser Tyr Gly Asn Gln His Pro His Pro Met Gln Ser Gln Tyr Pro
 515 520 525

Ala Leu Pro His Asp Thr Ala Ile Ser Gly Pro Leu His Tyr Ala Pro
 530 535 540

Tyr His Arg Ser Ser Ala Gln Tyr Pro Phe Asn Ser Pro Thr Ser Arg
 545 550 555 560

Met Glu Pro Cys Leu Met Ser Ser Thr Pro Arg Leu His Pro Thr Pro
 565 570 575

Val Thr Pro Arg Trp Pro Glu Val Pro Ser Ala Asn Thr Cys Tyr Thr
 580 585 590

Asn Pro Ser Val His Ser Ala Arg Tyr Gly Asn Ser Ser Asp Met Tyr
 595 600 605

Thr Pro Leu Thr Thr Arg Arg Asn Ser Glu Tyr Glu His Met Gln His

610

615

620

Phe Pro Gly Phe Ala Tyr Ile Asn Gly Glu Ala Ser Thr Gly Trp Ala
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Lys

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 <213> Mus musculus

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 ctttccacta gttctttctt ttcccccttt atccttttgc cctctcacc accgtctccc 180
 cctctctctc togetatccc ttccctcctt atttcttccc tcccttctc cctgggcac 240
 tctagcacag gggatcccca aatatcagga cttttggggg gcgtctgtgc tgtccatggg 300
 aagagc atg cat tgt ggg tta ctg gag gaa ccc gac atg gat tcc aca 348
 Met His Cys Gly Leu Leu Glu Glu Pro Asp Met Asp Ser Thr
 1 5 10
 gag agc tgg att gaa aga tgt ctc aat gaa agc gag aat aaa cgc tat 396
 Glu Ser Trp Ile Glu Arg Cys Leu Asn Glu Ser Glu Asn Lys Arg Tyr
 15 20 25 30
 tcc agt cac aca tct ctg ggg aat gtg tct aat gat gaa aat gag gaa 444
 Ser Ser His Thr Ser Leu Gly Asn Val Ser Asn Asp Glu Asn Glu Glu
 35 40 45
 aaa gaa aat aac aga gca tcc aag ccc cac tcc acg ccg gcc acc ctg 492
 Lys Glu Asn Asn Arg Ala Ser Lys Pro His Ser Thr Pro Ala Thr Leu
 50 55 60
 caa tgg ctg gag gaa aac tat gag att gct gag ggc gtc tgc atc ccc 540
 Gln Trp Leu Glu Glu Asn Tyr Glu Ile Ala Glu Gly Val Cys Ile Pro
 65 70 75
 cgc agc gcc ctc tac atg cac tac ctg gat ttc tgt gag aag aac gac 588
 Arg Ser Ala Leu Tyr Met His Tyr Leu Asp Phe Cys Glu Lys Asn Asp
 80 85 90
 act cag cct gtc aat gct gcc agc ttt ggg aag atc ata agg cag cag 636
 Thr Gln Pro Val Asn Ala Ala Ser Phe Gly Lys Ile Ile Arg Gln Gln
 95 100 105 110
 ttt cct cag cta acc acc aga aga ctc ggg acc ggg acc cga gga cag 684

Phe	Pro	Gln	Leu	Thr	Thr	Arg	Arg	Leu	Gly	Thr	Gly	Thr	Arg	Gly	Gln		
				115					120					125			
tca	aag	tac	cat	tac	tat	ggc	ata	gcg	gtg	aag	gag	agc	tcc	cag	tat		732
Ser	Lys	Tyr	His	Tyr	Tyr	Gly	Ile	Ala	Val	Lys	Glu	Ser	Ser	Gln	Tyr		
			130					135					140				
tat	gat	gtg	atg	tac	tca	aag	aaa	gga	gct	gcc	tgg	gtg	agc	gag	acg		780
Tyr	Asp	Val	Met	Tyr	Ser	Lys	Lys	Gly	Ala	Ala	Trp	Val	Ser	Glu	Thr		
			145				150					155					
ggc	aag	aga	gaa	gtc	acc	aag	cag	acg	gtg	gca	tat	tct	ccc	cgg	tcc		828
Gly	Lys	Arg	Glu	Val	Thr	Lys	Gln	Thr	Val	Ala	Tyr	Ser	Pro	Arg	Ser		
			160				165				170						
aag	ctt	ggg	aca	ttg	ctg	cca	gac	ttt	cca	aac	gtc	aaa	gac	cta	aat		876
Lys	Leu	Gly	Thr	Leu	Leu	Pro	Asp	Phe	Pro	Asn	Val	Lys	Asp	Leu	Asn		
					180					185					190		
ctg	cca	gcc	agt	ctt	cct	gag	gag	aag	gtg	tct	acc	ttt	att	atg	atg		924
Leu	Pro	Ala	Ser	Leu	Pro	Glu	Glu	Lys	Val	Ser	Thr	Phe	Ile	Met	Met		
				195					200					205			
tac	aga	aca	cac	tgt	cag	aga	ata	ctg	gac	act	gta	ata	aga	gcc	aac		972
Tyr	Arg	Thr	His	Cys	Gln	Arg	Ile	Leu	Asp	Thr	Val	Ile	Arg	Ala	Asn		
			210					215					220				
ttt	gat	gag	gtt	caa	agt	ttc	ctt	ctg	cac	ttt	tgg	caa	ggg	atg	ccg		1020
Phe	Asp	Glu	Val	Gln	Ser	Phe	Leu	Leu	His	Phe	Trp	Gln	Gly	Met	Pro		
			225				230					235					
ccc	cac	atg	ctg	ccc	gtg	cta	ggc	tcc	tcc	acg	gtg	gtg	aac	atc	gtg		1068
Pro	His	Met	Leu	Pro	Val	Leu	Gly	Ser	Ser	Thr	Val	Val	Asn	Ile	Val		
			240				245				250						
ggt	gtg	tgt	gac	tcc	atc	ctc	tac	aaa	gcc	atc	tcc	ggt	gtg	ttg	atg		1116
Gly	Val	Cys	Asp	Ser	Ile	Leu	Tyr	Lys	Ala	Ile	Ser	Gly	Val	Leu	Met		
					260				265					270			
ccc	acg	gtg	ctg	cag	gcg	ttg	ccg	gac	agc	tta	act	cag	gtg	atc	cga		1164
Pro	Thr	Val	Leu	Gln	Ala	Leu	Pro	Asp	Ser	Leu	Thr	Gln	Val	Ile	Arg		
				275				280						285			
aag	ttt	gcc	aag	cag	ctg	gac	gag	tgg	ctg	aaa	gtg	gct	ctc	cac	gat		1212
Lys	Phe	Ala	Lys	Gln	Leu	Asp	Glu	Trp	Leu	Lys	Val	Ala	Leu	His	Asp		
			290					295					300				
ctc	ccg	gaa	aac	ctg	aga	aac	atc	aaa	ttt	gaa	tta	tca	agg	agg	ttt		1260
Leu	Pro	Glu	Asn	Leu	Arg	Asn	Ile	Lys	Phe	Glu	Leu	Ser	Arg	Arg	Phe		
			305				310					315					
tcc	caa	atc	cta	agg	agg	caa	aca	tcg	ctg	aac	cat	ctg	tgc	cag	gca		1308
Ser	Gln	Ile	Leu	Arg	Arg	Gln	Thr	Ser	Leu	Asn	His	Leu	Cys	Gln	Ala		
			320				325				330						
tct	cga	acg	gtg	atc	cac	agt	gca	gac	atc	acg	ttc	cag	atg	ctg	gag		1356
Ser	Arg	Thr	Val	Ile	His	Ser	Ala	Asp	Ile	Thr	Phe	Gln	Met	Leu	Glu		
			335			340			345					350			
gac	tgg	agg	aat	gtg	gac	ctg	agt	agc	atc	acc	aag	cag	act	ctg	tat		1404
Asp	Trp	Arg	Asn	Val	Asp	Leu	Ser	Ser	Ile	Thr	Lys	Gln	Thr	Leu	Tyr		

				355				360				365							
acc	atg	gag	gac	tct	cgg	gat	gag	cac	cgc	aga	ctc	atc	atc	cag	ttg	1452			
Thr	Met	Glu	Asp	Ser	Arg	Asp	Glu	His	Arg	Arg	Leu	Ile	Ile	Gln	Leu				
				370				375				380							
tac	cag	gag	ttt	gac	cac	ctg	ctg	gag	gaa	cag	tcc	ccc	atc	gag	tct	1500			
Tyr	Gln	Glu	Phe	Asp	His	Leu	Leu	Glu	Glu	Gln	Ser	Pro	Ile	Glu	Ser				
				385				390				395							
tac	ata	gaa	tgg	ctg	gat	acc	atg	gta	gac	cga	tgc	gtt	gta	aag	gtg	1548			
Tyr	Ile	Glu	Trp	Leu	Asp	Thr	Met	Val	Asp	Arg	Cys	Val	Val	Lys	Val				
				400				405				410							
gct	gcc	aag	aga	caa	ggg	tct	ctg	aag	aaa	gta	gcc	caa	cag	ttc	ctg	1596			
Ala	Ala	Lys	Arg	Gln	Gly	Ser	Leu	Lys	Lys	Val	Ala	Gln	Gln	Phe	Leu				
				415				420				425				430			
ctg	atg	tgg	tct	tgc	ttt	ggg	acg	agg	gtg	atc	cgg	gac	atg	acc	ttg	1644			
Leu	Met	Trp	Ser	Cys	Phe	Gly	Thr	Arg	Val	Ile	Arg	Asp	Met	Thr	Leu				
				435				440				445							
cac	agt	gcc	ccc	agc	ttc	ggg	tct	ttt	cac	ctg	att	cac	ctg	atg	ttc	1692			
His	Ser	Ala	Pro	Ser	Phe	Gly	Ser	Phe	His	Leu	Ile	His	Leu	Met	Phe				
				450				455				460							
gac	gac	tac	gtg	ctc	tac	ttg	cta	gaa	tct	ctg	cat	tgt	cag	gag	cgg	1740			
Asp	Asp	Tyr	Val	Leu	Tyr	Leu	Leu	Glu	Ser	Leu	His	Cys	Gln	Glu	Arg				
				465				470				475							
gcc	aac	gag	ctc	atg	cga	gcc	atg	aaa	gga	gaa	gga	agc	act	gca	gaa	1788			
Ala	Asn	Glu	Leu	Met	Arg	Ala	Met	Lys	Gly	Glu	Gly	Ser	Thr	Ala	Glu				
				480				485				490							
gcc	cag	gaa	gag	att	atc	ttg	aca	gag	gct	acc	cca	cca	acc	cct	tca	1836			
Ala	Gln	Glu	Glu	Ile	Ile	Leu	Thr	Glu	Ala	Thr	Pro	Pro	Thr	Pro	Ser				
				495				500				505				510			
cct	ggg	cca	tca	ttt	tct	cca	gca	aag	tct	gcc	aca	tct	gtg	gag	gtg	1884			
Pro	Gly	Pro	Ser	Phe	Ser	Pro	Ala	Lys	Ser	Ala	Thr	Ser	Val	Glu	Val				
				515				520				525							
cca	cct	ccc	tcc	tcc	cct	gtc	agc	aac	cca	tcc	ccc	gaa	tac	act	ggc	1932			
Pro	Pro	Pro	Ser	Ser	Pro	Val	Ser	Asn	Pro	Ser	Pro	Glu	Tyr	Thr	Gly				
				530				535				540							
ctt	agc	aca	gca	gga	gcg	atg	cag	tca	tat	acg	tgg	tcg	cta	aca	tat	1980			
Leu	Ser	Thr	Ala	Gly	Ala	Met	Gln	Ser	Tyr	Thr	Trp	Ser	Leu	Thr	Tyr				
				545				550				555							
aca	gta	aca	acg	gct	gca	ggg	tca	ccg	gct	gag	aac	tcc	caa	caa	cta	2028			
Thr	Val	Thr	Thr	Ala	Ala	Gly	Ser	Pro	Ala	Glu	Asn	Ser	Gln	Gln	Leu				
				560				565				570							
ccc	tgt	atg	agg	agc	acc	cat	atg	cct	tct	tcc	tcc	gtc	aca	cac	agg	2076			
Pro	Cys	Met	Arg	Ser	Thr	His	Met	Pro	Ser	Ser	Ser	Val	Thr	His	Arg				
				575				580				585				590			
ata	cca	gtc	tac	tcc	cac	aga	gag	gag	cat	ggg	tac	acg	gga	agc	tat	2124			
Ile	Pro	Val	Tyr	Ser	His	Arg	Glu	Glu	His	Gly	Tyr	Thr	Gly	Ser	Tyr				
				595				600				605							

aac tac ggg agc tat ggc aac cag cat cct cac cca ctg cag aac cag 2172
 Asn Tyr Gly Ser Tyr Gly Asn Gln His Pro His Pro Leu Gln Asn Gln
 610 615 620

tat cca gcc ttg cct cat gac aca gcc atc tct ggg cct ctc cac tat 2220
 Tyr Pro Ala Leu Pro His Asp Thr Ala Ile Ser Gly Pro Leu His Tyr
 625 630 635

tcc cct tac cac agg agc tct gcc cag tac cct ttc aat agc ccc act 2268
 Ser Pro Tyr His Arg Ser Ser Ala Gln Tyr Pro Phe Asn Ser Pro Thr
 640 645 650

tcc agg atg gaa cct tgt ttg atg agc agt act ccc agg ctg cat cct 2316
 Ser Arg Met Glu Pro Cys Leu Met Ser Ser Thr Pro Arg Leu His Pro
 655 660 665 670

acc cca gtg act ccc cga tgg cca gag gtg ccg act gcc aac gca tgc 2364
 Thr Pro Val Thr Pro Arg Trp Pro Glu Val Pro Thr Ala Asn Ala Cys
 675 680 685

tac aca agc cca tct gtg cat tcc acg agg tat gga aac tct agt gac 2412
 Tyr Thr Ser Pro Ser Val His Ser Thr Arg Tyr Gly Asn Ser Ser Asp
 690 695 700

atg tac acc ccg ctg acc acg cgc agg aat tct gag tat gag cac atg 2460
 Met Tyr Thr Pro Leu Thr Thr Arg Arg Asn Ser Glu Tyr Glu His Met
 705 710 715

caa cac ttt cct ggc ttt gct tac atc aac gga gag gcc tcc act gga 2508
 Gln His Phe Pro Gly Phe Ala Tyr Ile Asn Gly Glu Ala Ser Thr Gly
 720 725 730

tgg gct aag tga ctgctttcat agaaatccat atttaatat aataattaat 2560
 Trp Ala Lys
 735

aataataata aaccagctac ccaccctcca gaagacttta tttcaatata tcataacttg 2620

cgggctgacc taagcatcca ttctcctaata gaacaagagg atgttcaatg tggagtgaat 2680

agacttttagt tcagaaacag gagtcactaa aagtcagtgg gattggggtt ctgtagccaa 2740

gccagacttg actgttttcta tagagcacta tcttgggcag gccaatctgt gcctttcccc 2800

tctgttccat gaccttgcat ggcaactact ccttgatatag gg 2842

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 <213> Mus musculus

<400> 6

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Trp Ile Glu Arg Cys Leu Asn Glu Ser Glu Asn Lys Arg Tyr Ser Ser
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His Thr Ser Leu Gly Asn Val Ser Asn Asp Glu Asn Glu Glu Lys Glu
 35 40 45

Asn Asn Arg Ala Ser Lys Pro His Ser Thr Pro Ala Thr Leu Gln Trp
 50 55 60

Leu Glu Glu Asn Tyr Glu Ile Ala Glu Gly Val Cys Ile Pro Arg Ser
 65 70 75 80

Ala Leu Tyr Met His Tyr Leu Asp Phe Cys Glu Lys Asn Asp Thr Gln
 85 90 95

Pro Val Asn Ala Ala Ser Phe Gly Lys Ile Ile Arg Gln Gln Phe Pro
 100 105 110

Gln Leu Thr Thr Arg Arg Leu Gly Thr Gly Thr Arg Gly Gln Ser Lys
 115 120 125

Tyr His Tyr Tyr Gly Ile Ala Val Lys Glu Ser Ser Gln Tyr Tyr Asp
 130 135 140

Val Met Tyr Ser Lys Lys Gly Ala Ala Trp Val Ser Glu Thr Gly Lys
 145 150 155 160

Arg Glu Val Thr Lys Gln Thr Val Ala Tyr Ser Pro Arg Ser Lys Leu
 165 170 175

Gly Thr Leu Leu Pro Asp Phe Pro Asn Val Lys Asp Leu Asn Leu Pro
 180 185 190

Ala Ser Leu Pro Glu Glu Lys Val Ser Thr Phe Ile Met Met Tyr Arg
 195 200 205

Thr His Cys Gln Arg Ile Leu Asp Thr Val Ile Arg Ala Asn Phe Asp
 210 215 220

Glu Val Gln Ser Phe Leu Leu His Phe Trp Gln Gly Met Pro Pro His
 225 230 235 240

Met Leu Pro Val Leu Gly Ser Ser Thr Val Val Asn Ile Val Gly Val
 245 250 255

Cys Asp Ser Ile Leu Tyr Lys Ala Ile Ser Gly Val Leu Met Pro Thr
 260 265 270

Val Leu Gln Ala Leu Pro Asp Ser Leu Thr Gln Val Ile Arg Lys Phe
 275 280 285

Ala Lys Gln Leu Asp Glu Trp Leu Lys Val Ala Leu His Asp Leu Pro
 290 295 300

Glu Asn Leu Arg Asn Ile Lys Phe Glu Leu Ser Arg Arg Phe Ser Gln
 305 310 315 320

Ile Leu Arg Arg Gln Thr Ser Leu Asn His Leu Cys Gln Ala Ser Arg
 325 330 335

Thr Val Ile His Ser Ala Asp Ile Thr Phe Gln Met Leu Glu Asp Trp
 340 345 350

Arg Asn Val Asp Leu Ser Ser Ile Thr Lys Gln Thr Leu Tyr Thr Met
 355 360 365

Glu Asp Ser Arg Asp Glu His Arg Arg Leu Ile Ile Gln Leu Tyr Gln
 370 375 380

Glu Phe Asp His Leu Leu Glu Glu Gln Ser Pro Ile Glu Ser Tyr Ile
 385 390 395 400

Glu Trp Leu Asp Thr Met Val Asp Arg Cys Val Val Lys Val Ala Ala
 405 410 415

Lys Arg Gln Gly Ser Leu Lys Lys Val Ala Gln Gln Phe Leu Leu Met
 420 425 430

Trp Ser Cys Phe Gly Thr Arg Val Ile Arg Asp Met Thr Leu His Ser
 435 440 445

Ala Pro Ser Phe Gly Ser Phe His Leu Ile His Leu Met Phe Asp Asp
 450 455 460

Tyr Val Leu Tyr Leu Leu Glu Ser Leu His Cys Gln Glu Arg Ala Asn
 465 470 475 480

Glu Leu Met Arg Ala Met Lys Gly Glu Gly Ser Thr Ala Glu Ala Gln
 485 490 495

Glu Glu Ile Ile Leu Thr Glu Ala Thr Pro Pro Thr Pro Ser Pro Gly
 500 505 510

Pro Ser Phe Ser Pro Ala Lys Ser Ala Thr Ser Val Glu Val Pro Pro
 515 520 525
 Pro Ser Ser Pro Val Ser Asn Pro Ser Pro Glu Tyr Thr Gly Leu Ser
 530 535 540
 Thr Ala Gly Ala Met Gln Ser Tyr Thr Trp Ser Leu Thr Tyr Thr Val
 545 550 555 560
 Thr Thr Ala Ala Gly Ser Pro Ala Glu Asn Ser Gln Gln Leu Pro Cys
 565 570 575
 Met Arg Ser Thr His Met Pro Ser Ser Ser Val Thr His Arg Ile Pro
 580 585 590
 Val Tyr Ser His Arg Glu Glu His Gly Tyr Thr Gly Ser Tyr Asn Tyr
 595 600 605
 Gly Ser Tyr Gly Asn Gln His Pro His Pro Leu Gln Asn Gln Tyr Pro
 610 615 620
 Ala Leu Pro His Asp Thr Ala Ile Ser Gly Pro Leu His Tyr Ser Pro
 625 630 635 640
 Tyr His Arg Ser Ser Ala Gln Tyr Pro Phe Asn Ser Pro Thr Ser Arg
 645 650 655
 Met Glu Pro Cys Leu Met Ser Ser Thr Pro Arg Leu His Pro Thr Pro
 660 665 670
 Val Thr Pro Arg Trp Pro Glu Val Pro Thr Ala Asn Ala Cys Tyr Thr
 675 680 685
 Ser Pro Ser Val His Ser Thr Arg Tyr Gly Asn Ser Ser Asp Met Tyr
 690 695 700
 Thr Pro Leu Thr Thr Arg Arg Asn Ser Glu Tyr Glu His Met Gln His
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Lys

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 Met His Cys Gly Leu Leu Glu Glu Pro Asp Met Asp Ser Thr
 1 5 10
 gag agc tgg att gaa aga tgt ctc aac gaa agt gaa aac aaa cgt tat 157
 Glu Ser Trp Ile Glu Arg Cys Leu Asn Glu Ser Glu Asn Lys Arg Tyr
 15 20 25 30
 tcc agc cac aca tct ctg ggg aat gtt tct aat gat gaa aat gag gaa 205
 Ser Ser His Thr Ser Leu Gly Asn Val Ser Asn Asp Glu Asn Glu Glu
 35 40 45
 aaa gaa aat aat aga gca tcc aag ccc cac tcc act cct gct act ctg 253
 Lys Glu Asn Asn Arg Ala Ser Lys Pro His Ser Thr Pro Ala Thr Leu
 50 55 60
 caa tgg ctg gag gag aac tat gag att gca gag ggg gtc tgc atc cct 301
 Gln Trp Leu Glu Glu Asn Tyr Glu Ile Ala Glu Gly Val Cys Ile Pro
 65 70 75
 cgc agt gcc ctc tat atg cat tac ctg gat ttc tgc gag aag aat gat 349
 Arg Ser Ala Leu Tyr Met His Tyr Leu Asp Phe Cys Glu Lys Asn Asp
 80 85 90
 acc caa cct gtc aat gct gcc agc ttt gga aag atc ata agg cag cag 397
 Thr Gln Pro Val Asn Ala Ala Ser Phe Gly Lys Ile Ile Arg Gln Gln
 95 100 105 110
 ttt cct cag tta acc acc aga aga ctc ggg acc cga gga cag tca aag 445
 Phe Pro Gln Leu Thr Thr Arg Arg Leu Gly Thr Arg Gly Gln Ser Lys
 115 120 125
 tac cat tac tat ggc att gca gtg aaa gaa agc tcc caa tat tat gat 493
 Tyr His Tyr Tyr Gly Ile Ala Val Lys Glu Ser Ser Gln Tyr Tyr Asp
 130 135 140
 gtg atg tat tcc aag aaa gga gct gcc tgg gtg agt gag acg ggc aag 541
 Val Met Tyr Ser Lys Lys Gly Ala Ala Trp Val Ser Glu Thr Gly Lys
 145 150 155
 aaa gaa gtg agc aaa cag aca gtg gca tat tca ccc cgg tcc aaa ctc 589
 Lys Glu Val Ser Lys Gln Thr Val Ala Tyr Ser Pro Arg Ser Lys Leu
 160 165 170
 gga aca ctg ctg cca gaa ttt ccc aat gtc aaa gat cta aat ctg cca 637
 Gly Thr Leu Leu Pro Glu Phe Pro Asn Val Lys Asp Leu Asn Leu Pro
 175 180 185 190
 gcc agc ctg cct gag gag aag gtt tct acc ttt att atg atg tac aga 685

Ala	Ser	Leu	Pro	Glu	Glu	Lys	Val	Ser	Thr	Phe	Ile	Met	Met	Tyr	Arg	
				195					200					205		
aca	cac	tgt	cag	aga	ata	ctg	gac	act	gta	ata	aga	gcc	aac	ttt	gat	733
Thr	His	Cys	Gln	Arg	Ile	Leu	Asp	Thr	Val	Ile	Arg	Ala	Asn	Phe	Asp	
			210					215					220			
gag	gtt	caa	agt	ttc	ctt	ctg	cac	ttt	tgg	caa	gga	atg	ccg	ccc	cac	781
Glu	Val	Gln	Ser	Phe	Leu	Leu	His	Phe	Trp	Gln	Gly	Met	Pro	Pro	His	
		225					230					235				
atg	ctg	cct	gtg	ctg	ggc	tcc	tcc	acg	gtg	gtg	aac	att	gtc	ggc	gtg	829
Met	Leu	Pro	Val	Leu	Gly	Ser	Ser	Thr	Val	Val	Asn	Ile	Val	Gly	Val	
	240					245					250					
tgt	gac	tcc	atc	ctc	tac	aaa	gct	atc	tcc	ggg	gtg	ctg	atg	ccc	act	877
Cys	Asp	Ser	Ile	Leu	Tyr	Lys	Ala	Ile	Ser	Gly	Val	Leu	Met	Pro	Thr	
255					260					265					270	
gtg	ctg	cag	gca	tta	cct	gac	agc	tta	act	cag	gtg	att	cga	aag	ttt	925
Val	Leu	Gln	Ala	Leu	Pro	Asp	Ser	Leu	Thr	Gln	Val	Ile	Arg	Lys	Phe	
				275					280					285		
gcc	aag	caa	ctg	gat	gag	tgg	cta	aaa	gtg	gct	ctc	cac	gac	ctc	cca	973
Ala	Lys	Gln	Leu	Asp	Glu	Trp	Leu	Lys	Val	Ala	Leu	His	Asp	Leu	Pro	
			290					295					300			
gaa	aac	ttg	cga	aac	atc	aag	ttc	gaa	ttg	tcg	aga	agg	ttc	tcc	caa	1021
Glu	Asn	Leu	Arg	Asn	Ile	Lys	Phe	Glu	Leu	Ser	Arg	Arg	Phe	Ser	Gln	
		305					310					315				
att	ctg	aga	cgg	caa	aca	tca	cta	aat	cat	ctc	tgc	cag	gca	tct	cga	1069
Ile	Leu	Arg	Arg	Gln	Thr	Ser	Leu	Asn	His	Leu	Cys	Gln	Ala	Ser	Arg	
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Ile His Ser Ala Asp Ile Thr Phe Gln Met Leu Glu Asp Trp Arg Asn 340 345 350		
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Tyr Gly Asn Gln His Pro His Pro Met Gln Ser Gln Tyr Pro Ala Leu
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Met Leu Cys Gly Leu Leu Glu Glu
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Val Asn Glu Thr Gly Lys Lys Glu Val Thr Lys Gln Thr Val Ala Tyr	
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Cys Gln Arg Ile Leu Asp Thr Val Ile Arg Ala Asn Phe Asp Glu Val
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Pro Val Leu Gly Ser Ser Thr Val Val Asn Ile Val Gly Val Cys Asp
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35 40 45

Asn Asn Arg Ala Ser Lys Pro His Ser Thr Pro Ala Thr Leu Gln Trp
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65 70 75 80

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Asp Ser Arg Cys Pro Leu Ser Arg Asn Ile Thr Glu Trp Tyr His Tyr	20	25	30	35
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Tyr Gly Ile Ala Val Lys Glu Ser Ser Gln Tyr Tyr Asp Val Met Tyr	40	45	50	
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Ser Lys Lys Gly Ala Ala Trp Val Ser Glu Thr Gly Lys Lys Glu Val	55	60	65	
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Leu Pro Glu Phe Pro Asn Val Lys Asp Leu Asn Leu Pro Ala Ser Leu	85	90	95	
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Gln	Arg	Ile	Leu	Asp	Thr	Val	Ile	Arg	Ala	Asn	Phe	Asp	Glu	Val	Gln	
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Ser	Phe	Leu	Leu	His	Phe	Trp	Gln	Gly	Met	Pro	Pro	His	Met	Leu	Pro	
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Val	Leu	Gly	Ser	Ser	Thr	Val	Val	Asn	Ile	Val	Gly	Val	Cys	Asp	Ser	
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Arg	Asp	Glu	His	Arg	Lys	Leu	Ile	Thr	Gln	Leu	Tyr	Gln	Glu	Phe	Asp	
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Tyr His Tyr Tyr Gly Ile Ala Val Lys Glu Ser Ser Gln Tyr Tyr Asp
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Val Met Tyr Ser Lys Lys Gly Ala Ala Trp Val Ser Glu Thr Gly Lys
 50 55 60

Lys Glu Val Ser Lys Gln Thr Val Ala Tyr Ser Pro Arg Ser Lys Leu
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Gly Thr Leu Leu Pro Glu Phe Pro Asn Val Lys Asp Leu Asn Leu Pro
 85 90 95

Ala Ser Leu Pro Glu Glu Lys Val Ser Thr Phe Ile Met Met Tyr Arg
 100 105 110

Thr His Cys Gln Arg Ile Leu Asp Thr Val Ile Arg Ala Asn Phe Asp
 115 120 125

Glu Val Gln Ser Phe Leu Leu His Phe Trp Gln Gly Met Pro Pro His
 130 135 140

Met Leu Pro Val Leu Gly Ser Ser Thr Val Val Asn Ile Val Gly Val
 145 150 155 160

Cys Asp Ser Ile Leu Tyr Lys Ala Ile Ser Gly Val Leu Met Pro Thr
 165 170 175

Val Leu Gln Ala Leu Pro Asp Ser Leu Thr Gln Val Ile Arg Lys Phe
 180 185 190

Ala Lys Gln Leu Asp Glu Trp Leu Lys Val Ala Leu His Asp Leu Pro
 195 200 205

Glu Asn Leu Arg Asn Ile Lys Phe Glu Leu Ser Arg Arg Phe Ser Gln
 210 215 220

Ile Leu Arg Arg Gln Thr Ser Leu Asn His Leu Cys Gln Ala Ser Arg
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Thr Val Ile His Ser Ala Asp Ile Thr Phe Gln Met Leu Glu Asp Trp
 245 250 255

Arg Asn Val Asp Leu Asn Ser Ile Thr Lys Gln Thr Leu Tyr Thr Met
 260 265 270

Glu Asp Ser Arg Asp Glu His Arg Lys Leu Ile Thr Gln Leu Tyr Gln
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Glu Phe Asp His Leu Leu Glu Glu Gln Ser Pro Ile Glu Ser Tyr Ile
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Glu Trp Leu Asp Thr Met Val Asp Arg Cys Val Val Lys Val Ala Ala
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Lys Arg Gln Gly Ser Leu Lys Lys Val Ala Gln Gln Phe Leu Leu Met
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Trp Ser Cys Phe Gly Thr Arg Val Ile Arg Asp Met Thr Leu His Ser
 340 345 350

Ala Pro Ser Phe Gly Ser Phe His Leu Ile His Leu Met Phe Asp Asp
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Tyr Val Leu Tyr Leu Leu Glu Ser Leu His Cys Gln Glu Arg Ala Asn
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Glu Glu Ile Ile Leu Thr Glu Ala Ala Ala Pro Thr Pro Ser Pro Val
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Pro Ser Ser Pro Val Ser Asn Pro Ser Pro Glu Tyr Thr Gly Leu Ser
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Thr Thr Ala Ala Gly Ser Pro Ala Glu Asn Ser Gln Gln Leu Pro Cys
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Met Arg Asn Thr His Val Pro Ser Ser Ser Val Thr His Arg Ile Pro
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Val Tyr Pro His Arg Glu Glu His Gly Tyr Thr Gly Ser Tyr Asn Tyr
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Gly Ser Tyr Gly Asn Gln His Pro His Pro Met Gln Ser Gln Tyr Pro
 515 520 525

Ala Leu Pro His Asp Thr Ala Ile Ser Gly Pro Leu His Tyr Ala Pro
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Tyr His Arg Ser Ser Ala Gln Tyr Pro Phe Asn Ser Pro Thr Ser Arg
 545 550 555 560

Met Glu Pro Cys Leu Met Ser Ser Thr Pro Arg Leu His Pro Thr Pro
 565 570 575

Val Thr Pro Arg Trp Pro Glu Val Pro Ser Ala Asn Thr Cys Tyr Thr
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Ser Pro Ser Val His Ser Ala Arg Tyr Gly Asn Ser Ser Asp Met Tyr
 595 600 605

Thr Pro Leu Thr Thr Arg Arg Asn Ser Glu Tyr Glu His Met Gln His
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Phe Pro Gly Phe Ala Tyr Ile Asn Gly Glu Ala Ser Thr Gly Trp Ala
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<213> Homo sapiens

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<212> PRT

<213> Mus musculus

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<213> Danio rerio

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<212> DNA

<213> Homo sapiens

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<213> Danio rerio

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